3.1 APPLICATION PREPARATION INSTRUCTIONS (JAN 2003)

To aid in evaluation, applications shall be clearly and concisely written. All pages shall be appropriately numbered and identified with the name of the applicant, the date, and the solicitation number to the extent practicable. Application files are to be formatted in one of the following software applications:

Adobe Acrobat PDF, Word or WordPerfect.

For consistency, the applicant is instructed to use the file names specified below,. Filename extensions shall clearly indicate the software application used for preparation of the documents (i.e., "xxx.wpd" for WordPerfect, "xxx.pdf" for Adobe Acrobat, or "xxx.doc"for Word files, etc.).

MANDATORY FILES	FILENAME
Application	424.---
Certifications and Assurances	540_1-4.---
Project Summary (This file includes a (1) page single spaced public abstract)	540_1-2.---
Narrative	TECHNICAL.---
Budget	4600.4.--- or 424a.---
Budget Narrative	BUDGET NARRATIVE.---
ADDITIONAL FILE(S)	
Appendix - Resumes of Key Personnel, Publications, Letters of Commitment and other supporting Documents	PROJECT SUPPORT.--

The application form (SF 424), Certifications and Assurances (NETL F540.1-4), Project Summary Sheet (NETL F540.1-2), and Budget Form (SF 424A or DOE F 4600.4) are available on the NETL homepage at:

http://www.netl.doe.gov/business/faapiaf/main.html.

Instructions for completion of the forms are contained on the back of each form. Questions on completion of the forms should be addressed to the Contract Specialist. You must complete the required information, type the name of the individual authorized to sign the form in the signature block, and save the file with the designated name for that form.

NARRATIVE

This file shall include a cover page indicating the solicitation number, name and address of the Applicant, point of contact, telephone/FAX number/E-Mail address, title of project, and date of application. It is requested that the narrative not exceed 35 PAGES DOUBLE spaced, using 12 point font, 1" margins, and when printed will fit on size 8 ½" by 11" paper.

The narrative will consist of the Applicant's outline addressing the technical and management aspects of the assistance action, the Applicant's capabilities and what the Applicant will do to satisfy the requirements of the solicitation. Since the technical information contained in this section will be evaluated to determine such matters as understanding of the

work to be performed, technical approach, and potential for completing the desired work, it should be specific and complete in every detail. The narrative should be practical and be prepared simply and economically, providing a straightforward, concise delineation of what it is the Applicant will do to satisfy the requirements of the solicitation.

To help facilitate the review process and to insure addressing all the review criteria, the applicant shall use the following format when preparing the narrative. This format relates to the technical evaluation criteria found in Section IV.

Technical Discussion

This section shall contain the major portion of the narrative. It shall be presented in as much detail as practical and the applicant shall provide the technical information as follows:

SCIENTIFIC AND TECHNICAL MERIT

Applicants should provide a comprehensive discussion that addresses the following factors:

(1) a review of the developmental history or background of the proposed technology in relation to active research to measure and remove mercury from flue gas, how the proposed technical approach is different from past and current mercury removal practice(s), and evidence of a logical progression of the proposed effort;

(2) a complete and detailed project description and the perceived technical feasibility of the project (based on sound scientific and engineering principles) in regards for its readiness for long-term field testing;

(3) the degree to which the technology or methodology, if successfully developed as proposed, represents an important measurable advancement towards achieving the objectives of the solicitation;

(4) the extent to which the project incorporates the use of existing air-pollution control devices to provide mercury control and the ability of the proposed test sites to address DOE's identified data gaps (Section 1.2-Table 3) regarding coal rank, equipment configuration, and equipment variables (SCA, operating temperature, etc.);

(5) a description of the technology's economic benefits including co-pollutant control, the ability of the sorbent/technology to perform adequately in spite of potential variation in coal type, coal blends, burner design, plant size, and reduction in total mercury emissions;

(6) rationale (supported via previous test results on actual coal-fired flue gas) for further testing of the technology at the proposed level of maturity;

(7) evidence for potential replication and market penetration of the technique within the utility industry (in regards to its applicability to a variety of power plant configurations firing different ranks/blends of coal);

(8) the potential impact of the technology on the sale and/or disposal of coal utilization byproducts such as fly ash and scrubber solids; and

(9) the potential of the technology to meet/exceed the identified mercury removal targets.

TECHNICAL APPROACH/WORK PLAN DEFINITION:

The applicant shall provide a comprehensive discussion that addresses the following factors:

(1) the current availability of the proposed technology at scales commensurate with the desired testing objectives and rationale for the duration of testing (minimum of one month up to six months at optimum process conditions);

(2) a detailed project description (including process diagrams, hardware sketches, etc.) and plans necessary for the

design, installation/modification, permitting, operation, and maintenance (if required) of the air pollution control device(s);

(3) a Statement of Work (SOW)* that allows an evaluator to determine the quality, quantity, completeness, and realism of the work being proposed. The proposed SOW shall clearly describe and support in narrative form the work to be performed including a) details regarding the type, size, and availability of equipment to be used, the quality of the expected data, the plan for evaluating the effectiveness of the proposed technology, process, or concept, the reality of the operating conditions, the number of variable and levels to be tested, the length of the test run period, and sampling and sample analysis schemes, b) a detailed project and milestone schedules and a work breakdown structure (WBS) that divides the project into its associated tasks, and subtasks necessary to accomplish the project objective(s); the labor hours and justification required for each task, including a table showing labor hours and labor categories (labor distribution plan), including those for any proposed subcontracting or consulting effort for each task and/or subtask; the proposed travel including the purpose, number of trips, origin and destination, trip duration, and number of personnel, c) a detailed description of how facilities, equipment, and support personnel or other resources will be applied to the proposed SOW, d) reporting and technology transfer activities, e) estimated quantity of work to be performed considering the sampling of mercury and the effectiveness of the proposed control technology(ies) under numerous test variables as measured with accurate, dependable mercury CEMs and validated with acceptable EPA mercury measurement methods, f) a rationale and logic diagram showing interrelationships between tasks and phases (if applicable), and g) a discussion of the notification sequence/chain of communication for any issues that impede the project and how plans to overcome them would be decided;

(4) a discussion on by-products sampling locations, how by-products obtained will represent equilibrium process conditions, and the impact of mercury control on the by-products. As it is possible that Hg may be released to the environment from multiple pathways (i.e. leaching, volatilization or microbial mobilization, proposals should address how the by-products could mobilize mercury to any and/or all of these pathways if appropriate. All successful applicants will be required to collect (during performance testing), store and ship any pertinent by-product materials (i.e. fly ash, and (if applicable) FGD materials including both solids and scrubber liquor) to an independent contractor of NETL's choice for analysis. In addition to total mercury, analysis will include both leaching and volatilization studies and may include biological and/or petrographic analysis using standard analytical protocols. Specifically, 6 five-gallon buckets of each material shall be collected from appropriate sample locations. This includes three samples of material pre-mercury control (baseline) and 3 post-mercury control samples (for each separate test condition). Measurement of mercury in all streams (including water) is necessary for a complete process mercury balance;

(5) a detailed plan for maintaining/disposing the system(s) following the end of the project; and

(6) the identification of, and commitment to, a viable technology transfer path to the utility industry at the earliest practicable time (no later than the current regulation compliance deadline of February 2008).

* Each applicant should prepare a separate quality assurance/quality control (QA/QC) plan for each host site proposed. The plan shall address how the applicant would provide the assessment and the control of the data quality with respect to, but not be limited to, each phase of evaluating the proposed technology(ies), sample collection phase, analytical phase, data analysis phase, ongoing mercury removal performance and verification, assessing both the negative and positive impacts on the power plant APCDs while determining mercury material balances, etc., determining the sequestration potential of captured mercury in all media utilized for removal, and determining the steps that would be taken for corrective action when pre-established specifications or conditions are not met. DOE/NETL anticipates that there will be the need for significant interaction between the Applicant Principal Investigator (PI) and the DOE Contracting Officer’s Representative (COR) during the testing and sampling periods. Mercury measurements should be available on a real-time basis through the use of CEMs or S-CEMs in the sampling periods so that decisions can be made rapidly on revisions to the experimental plan and the determination of operating conditions for long-term operations. The statement of work should take into consideration the PI/COR interaction and suggest methods to keep the COR informed as to the progress of the project without the delays associated with formal reporting.

In addition to the above, the applicant should provide in the appendix (file name - PROJECT SUPPORT), letters of commitment from each host utility providing evidence of the of the host sites willingness to permit the applicant to conduct test on its site for the duration of the project. The applicant shall make all provisions in the Host Site Agreement for the access of personnel from DOE/NETL for all selected projects. Access shall be for the duration of the project at each host site. The applicant shall also make provisions in the Host Site Agreement for the possible access of personnel from the Environmental Protection Agency (EPA), and/or their respective sampling and quality assurance/quality control (QA/QC) contractors during performance testing if DOE/NETL so desires. EPA's participation could include the evaluation of mercury/multipollutant control technology performance by providing emission data measurement, mercury removal monitoring with comparable mercury CEMs or S-CEMs, and QA/QC support for various selected projects. EPA would only need access during specified periods of time and wouldn't be on site without some pre-negotiated, prior DOE/NETL notification to the host site

PROJECT MANAGEMENT, FACILITIES AND EQUIPMENT:

The applicant shall describe its capabilities by including discussions that:

(1) describe the credentials, capabilities, and experience (ie, prior research and development efforts toward control of pollutants in coal combustion flue gas, including that from coal-fired utilities and document the relevant experience in developing and executing quality assurance/quality control (QA/QC) plans and managing sampling efforts of air toxic emissions (e.g., mercury) utilizing CEM/S-CEMS and Ontario Hydro measurement techniques) of key personnel. In addition to the above, the applicant should provide in the appendix (file name - PROJECT SUPPORT), resumes and other information consistent with and appropriate to the role each will play in the proposed project, including major subcontractors and document the relevant corporate experience (pollution control efforts relative to coal combustion flue gas, including that from coal-fired utilities) of participating organizations in past or current demonstration projects and the commitment to any teaming arrangement;

(2) discuss in detail the availability (percentage of time allocated to the project) of key personnel;

(3) discuss the project organization and structure delineating the technical and administrative roles, responsibilities and lines of authority among the various team organizations [including subcontractor(s), vendor(s), host utility(ies), etc.] and their key personnel ;

(4) discuss the management, coordination, and control procedures/systems that will be applied to the project; and

(5) document the type, quality, availability and appropriateness of existing facilities, equipment, and materials to be utilized in carrying out the proposed work.

The Department of Energy's, National Energy Technology Laboratory uses a specific format for Statement of Project Objectives in its awards. In solicitations such as this one, where the Government does not provide a Statement of Project Objectives, the Applicant is to provide one, which the DOE will then use to generate the Statement of Project Objectives to be included in the award.

All applications must contain a single, detailed Statement of Project Objectives that addresses how the project objectives will be met. The Statement of Project Objectives must contain a clear, concise description of all activities to be completed during project performance and follow the structure discussed below. The Statement of Project Objectives may be released to the public by DOE in whole or in part at any time. It is therefore required that it shall not contain proprietary or confidential business information.

The Statement of Project Objectives is generally less than 15 pages in total (Your Statement of Project Objectives <u>is not</u> considered as part of narrative page limitation). Applicants shall prepare the Statement of Project Objectives in the following format:

TITLE OF WORK TO BE PERFORMED

(Insert the title of work to be performed. Be concise and descriptive.)

A. OBJECTIVES (To be completed by applicant)

Include one paragraph on the overall objective(s) of the work. Also, include objective(s) for each phase of the work.

B. SCOPE OF WORK (To be completed by applicant)

This section should not exceed one-half page and should summarize the effort and approach to achieve the objective(s) of the work for each Phase.

C. TASKS TO BE PERFORMED (To be completed by applicant)

Tasks, concisely written, should be provided in a logical sequence and should be divided into the phases of the project. This section provides a brief summary of the planned approach to this project.

PHASE I

Task 1.0 - (Title)

(Description)

Subtask 1.1 (Optional)

(Description)

Task 2.0 - (Title)

PHASE II (Optional)

Task 3.0 - (Title)

D. DELIVERABLES (To be completed by applicant)

In this section, the applicant shall briefly describe what the principal technical contents of the reports will be. For example, the principal contents could be the results of processed data, the results of analyses and tests, abstracts or papers submitted to technical conferences, or summaries of workshops. This section is intended to briefly summarize technical contents only. Please note that the periodic, topical, and final reports shall be submitted in accordance with the “Federal Assistance Reporting Checklist” and the instructions accompanying the checklist. The checklist specifies the frequency, form, format, and file name conventions for reporting, not the principal contents.

E. BRIEFINGS/TECHNICAL PRESENTATIONS (If applicable)

The Recipient shall prepare detailed briefings for presentation to the COR at the COR's facility located in Pittsburgh, PA or Morgantown, WV. Briefings shall be given by the Recipient to explain the plans, progress, and results of the technical effort.

The Recipient shall provide and present a technical paper(s) at the DOE/NETL Annual Contractor's Review Meeting to be held at the NETL facility located in Pittsburgh, PA or Morgantown, WV.

BUDGET NARRATIVE

The following budget detail is required. Failure to provide the detailed cost information as described in the instructions will result in an incomplete application. If a minimum cost share is required by this solicitation, the applicant shall stipulate in the application the source and amount of cost sharing and the value of third party in-kind contributions proposed to meet the requirement. Additionally teaming members and subcontractors are also required to submit the below information with their budgets.

PERSONNEL -- In support of the proposed personnel costs, provide a supplemental schedule that identifies the labor hours, labor rates, and cost by labor classification for each budget year. Also indicate the basis of the labor classification, number of hours, and labor rates. An example of the basis for the labor classification and number of hours could be past experience, engineering estimate, etc. An example of the basis for the labor rates could be actual rates for the individuals who will perform the work or an average labor rate for the labor classification or a departmental average rate.

FRINGE BENEFITS -- Provide the method used to calculate the proposed rate amount. If a fringe benefit has been negotiated with, or approved by, a Federal Government agency, provide a copy of the agreement. If no rate agreement exists, provide a detailed list of the fringe benefit expenses (e.g., payroll taxes, insurances, holiday and vacation pay, bonuses) and their associated costs. Identify the base for allocating these fringe benefit expenses.

TRAVEL -- For each proposed trip, provide the purpose, number of travelers, travel origin and destination, number of days, and a breakdown of costs for airfare, lodging, meals, car rental, and incidentals. The basis for the airfare, lodging, meals, car rental, and incidentals must be provided, such as past trips, current quotations, Federal Travel Regulations, etc.

EQUIPMENT -- Provide an itemized list of each piece of equipment, its unit costs, and the basis for estimating the cost, for example, vendor quotes, catalog prices, prior invoices, etc.

SUPPLIES -- Provide an itemized list of supplies, identify the quantity of each item, its unit cost, and the basis for estimating the cost, for example, vendor quotes, catalog prices, prior invoices, etc.

CONTRACTUAL

Consultants -- Provide the hourly or daily rate along with the basis for the rate. Furnish resumes or similar information regarding qualifications or experience. Provide at least two invoices reflecting hourly or daily rates charged to customers other than the Government. A statement signed by the consultant certifying his or her availability and salary must be provided. If travel or incidental expenses are to be charged, give the basis for these costs.

Subcontractors -- Identify each planned subcontractor and its total proposed budget. Each subcontractor's budget and supporting cost detail should be included as part of the applicant's budget narrative. In addition, the applicant shall provide the following information for each planned subcontract: a brief description of the work to be subcontracted; the number of quotes solicited and received; the cost or price analysis performed by the applicant; names and addresses of the subcontractors tentatively selected and the basis for their selection; i.e. low bidder, delivery schedule, technical competence; type of contract and estimated cost and fee or profit; and, affiliation with the applicant, if any.

CONSTRUCTION -- Provide detail of construction costs, if applicable.

OTHER DIRECT COSTS -- Provide an itemized list with costs for any other item proposed as a direct cost and state the basis for each proposed item.

INDIRECT COSTS -- If indirect rates have been negotiated with or approved by a Federal Government agency,

please provide a copy of the latest rate agreement. If you do not have a current rate agreement, submit an indirect cost rate proposal which includes the major base and pool expense groupings by line item and dollar amount. In either case, provide a breakdown of the proposed indirect costs for each of your accounting periods included in the proposal. Identify the rate and allocation base for each indirect cost, such as Overhead, General and Administrative, Facilities Capital Cost of Money, etc.

COST SHARING -- Identify the percentage level and source of cost sharing for the proposed project. Firm funding commitments are expected and documentation of those commitments must be included in the application. Additionally, the impact of DOE's cost share to the viability of the project must be addressed, to include justification for the need for Federal Funds.

NOTE: The total project cost (i.e. sum of Applicant and other participants plus DOE cost shares) must be reflected in each budget form.

A detailed estimate of the cash value (basis of and the nature, e.g., equipment, labor, facilities, cash, etc.) of all contributions to the project by each participant must be provided. Note that "cost-sharing" is not limited to cash investment. In-kind contributions (e.g., contribution of services or property; donated equipment, buildings, or land; donated supplies; or unrecovered indirect costs) incurred as part of the project may be considered as all or part of the cost share. The "cost-sharing" definition is contained in 10 CFR 600.30, 600.101, 600.123, 600.224, and OMB Circular A-110.

Fee or profit will not be paid to the recipients of financial assistance awards. Additionally, foregone fee or profit by the Applicant shall not be considered cost sharing under any resulting award. Reimbursement of actual costs will only include those costs that are allowable and allocable to the project as determined in accordance with the applicable cost principles prescribed in 10 CFR 600.127.

ADDITIONAL FILE(S) - Appendix (These pages do not count against the narrative page limitation).

This file shall contain resumes of key personnel, publications, Letters of Commitment (including host site letters) and other supporting documents.